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AS

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/998,264 12/24/97 ARMAND M UTSB:646

005514 IM22/0228
FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK NY 10112

EXAMINER

CHANEY, C

ART UNIT

PAPER NUMBER

1745

16

DATE MAILED: 02/28/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/998,264

Applicant(s)
Armand et al.

Examiner
Carol Chaney

Group Art Unit
1745



☒ Responsive to communication(s) filed on 12-14-99

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-22, 24, 26-59, and 61-65 is/are pending in the application.

Of the above, claim(s) 1-22, 24, 50-59, and 61 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 26-49 and 62-65 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

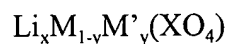
☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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Specification

1. The amendment filed 12-18-99 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The use of M' in the cathode material claimed as:



and the limitation $0 \leq y \leq 0.2$ introduce new matter. Limiting the range of second oxidizable metals (M') to under 20 mole percent of the framework metals is not supported by the specification as originally filed, and grouping the metals D, T, Q, and R together as M' does not appear to be supported by the application as originally filed.

In claim 40, support for conductivities at room temperature does not appear to be found in the specification as originally filed.

Applicant is required to cancel the new matter in the reply to this Office action.

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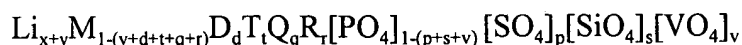
Claim Rejections - 35 USC § 112

2. Claims 26-49 and 62-65 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As discussed above, applicants' rewriting of the empirical formula for a cathode active material introduces new matter into applicants' claims.

3. Claims 26-49 and 62-65 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As described in the office action mailed 7-15-99, applicants' specification fails to enable one of ordinary skill in the art to make the cathode material:



without undue experimentation. Rewriting this cathode material formula as $\text{Li}_x\text{M}_{1-y}\text{M}'_y(\text{XO}_4)$ fails to facilitate one of ordinary skill in the art in making and/or using of the invention.

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Claim Rejections - 35 USC § 102/103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 28, 30, 31, 62, and 63 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shackle (US Patent 5,721,070) for essentially reasons of record.

Shackle discloses the compound $\text{LiMn(VO}_4\text{)}$ which corresponds to applicants' compound $\text{Li}_x\text{M}_{1-y}\text{M}'_y(\text{XO}_4)$ when $x = 1$; $y=0$; $\text{M} = \text{Mn}$ and $\text{X} = \text{V}$.

Alternatively, the compound $\text{LiMn(VO}_4\text{)}$ corresponds to the applicants' compound $\text{Li}_x\text{M}_{1-y}\text{M}'_y(\text{XO}_4)$ when $x = 1$; $\text{M} = \text{Mn}$; $\text{M}' = \text{Mn}$ and $\text{X} = \text{V}$.

Response to Arguments

6. Applicant's arguments filed 12-18-99 have been fully considered but they are not persuasive. Applicants argue that Shackle discloses compounds having three entities (alkali metal M, transition metal T, and metal oxide anion A) whereas applicants inventive cathode material $\text{Li}_x\text{M}_{1-y}\text{M}'_y(\text{XO}_4)$ comprises four entities. Applicants state claim 62 is specifically drafted to prevent M and M' from being the same metal cation. However, both M and M' can be Fe, Ti,

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Co, Mn or Ni, which means M and M' can be identical. Additionally, because 'y' may be zero, applicants' formula does not require two distinct metals.

Applicants' note that Shackle does not specifically mention compounds which have "olivine structures" or "modified olivine structures". However, since Shackle discloses $\text{LiMn}(\text{VO}_4)$ as an exemplary compound, and this material has an olivine type structure, Shackle inherently discloses compounds with an olivine structure. (Note Chemical Abstracts Accession Number 81:70663 CA).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (703) 305-3777. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Maria Nuzzolillo, can be reached on (703) 305-3776. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Carol Chaney
Patent Examiner
Art Unit 1745
February 25, 2000